Umetco Minerals Corporation

P.O. BOX 1029 • GRAND JUNCTION, COLORADO 81502
☎ (303) 245-3700

October 12, 1987

Mr. Steve McNeal
Division of Environmental Health
Utah Department of Health
150 West North Temple
Salt Lake City, Utah 84110

Dear Mr. McNeal:

Re: Hecla Treatment Plant and Silver Bell Mine Discharge Analyses

We have received the analyses for the last water samples for the above-named facilities. The results are as follows:

	Hecla Treatment Plant	Silver Bell Mine Discharge
pH (Field)	6.5	6.5
Ra226, pCi/L (R)	11 (± 2)	8.1 (± 1.6)
Nat. Uranium, pCi/L (R)	285	1390
TDS, mg/L	484	1180
TSS, mg/L	5	56

The Wilson-Silver Bell evaporation pond has been completed and as of September 24, 1987, the mine discharge water is being pumped into the pond. The water is being discharged on some old conveyor belting in order to eliminate any erosion problems. We do not plan to get any more analyses for Wilson-Silver Bell mine discharge water.

We have performed further analysis on removing Ra^{226} from the Hecla mine discharge. Based on this analysis, we believe that it is feasible to remove Ra^{226} by constructing a treatment pond. The pond would be constructed of local clays having high sorption coefficients (Kd values).

In order to determine the ability of materials to attenuate the Ra^{226}, we propose to conduct column tests on three materials from local sources. These experiments would measure the permeability of the materials, determine compatibility of materials with mine discharge and the sorption ability of the materials.

The experiments would be conducted by UMETCO personnel with guidance from a consulting geochemist.

The column experiments would be performed in 4-inch diameter permeameters under a head simulating field conditions (approximately 4 to 7 feet). The soil samples would be placed in the permeameter cells for a height of approximately 4 inches.

Chemical analyses will be performed on sample influent and effluent for several pore volumes in order to calculate the sorption coefficients.

The data collected from these column experiments would be used as input to design the liner system for proper materials and liner thickness to achieve the desired Ra^{226} attenuation.

We anticipate to begin these experiments during November and complete them by May, 1988. We will keep you informed of the experiments and results.

Yours truly,

Niels B. Haubold

Niels B. Haubold
Manager of Mines

NBH/jac

xc: Messrs. D. Ariotti
R. F. Barnett
J. L. Hasty
R. K. Jones
C. O. Sealy